

ZBIRKA VOČE

Otvorili ste zbirku zadataka iz matematike koju sastavljaju učenici Gimnazije Tituša Brezovačkog. Neke zadatke učenici su izmislili sami, a neke su prepisali iz postojećih zbirki. Planovi i želje su zbirku proširivati novim zadacima i s vremenom pokriti čim više nastavnih cjelina iz programa matematike za opće gimnazije. Zadaci su dostupni svima zainteresiranima s nadom da će njihovo rješavanje učvrstiti temelje matematičkoga znanja, umnožiti ideje za kvalitetnim rastom ove zbirke i usavršiti samo rješavanje zadataka. Učenici naše škole mogu se osobno javiti svojim profesoricama, a svi ostali putem e-maila Gimnazije Tituša Brezovačkog (s napomenom da je mail za Aktiv profesora matematike).

Zašto ZBIRKA VOČE ? Dobra zabava u rješavanju i ovoga zadatka :)

Sljedeće zadatke sastavili su i riješili učenici 1.a i 1.d razreda školske godine 2010./2011.

1. $\frac{3 - 0,5 : \frac{3}{4} + 2}{\frac{1}{2} : \frac{1}{3}} - \frac{1\frac{3}{4} - 0,75}{0,8} =$	$\left(\frac{59}{36}\right)$
2. $\left(1,8 - \frac{2}{5}\right) \cdot \left(-2\frac{2}{4}\right) - 0,2 : \left(-\frac{8}{10}\right) =$	$\left(-\frac{13}{4}\right)$
3. $\frac{\frac{2}{3} : \frac{4}{9} - \frac{1}{2} : \frac{0,2}{1,2} + \left[\frac{8}{81} \cdot \frac{7}{8} - \left(2,2 \cdot \frac{0,3}{11} - 0,2 \cdot 0,3\right)\right]}{-\frac{1}{3} - \frac{3}{2}} =$	$\left(-\frac{263}{81}\right)$
4. $2 \cdot 2\frac{1}{4} + 2\frac{1}{5} - 4 : 5 + 1\frac{1}{2} =$	$\left(\frac{37}{5}\right)$
5. $2\frac{2}{5} \cdot 1\frac{3}{7} - 3 : \frac{9}{7} + \frac{4}{7} : 2 =$	$\left(\frac{29}{21}\right)$
6. $2\frac{1}{5} : 1\frac{7}{15} + 2\frac{2}{3} - 9 : 13\frac{1}{2} + 2 \cdot \frac{3}{4} =$	(5)
7. $\frac{\frac{5}{6} \cdot \frac{5}{2} - \frac{3}{24} \cdot \frac{1}{36}}{\frac{2}{3} : \frac{6}{3} + \frac{1}{12} \cdot \frac{3}{24}} =$	$\left(\frac{47}{45}\right)$
8. $\frac{2}{5} : \frac{4}{9} - 3 \cdot \left(\frac{8}{9} - \frac{1}{2}\right) + \frac{1}{3} \cdot \left(\frac{9}{5} - 2\right) =$	$\left(-\frac{1}{3}\right)$
9. $\left(\frac{16}{40} : \frac{5}{3} + \frac{15}{50}\right) + 6\frac{2}{3} : \frac{1}{3} + 12 =$	$\left(\frac{1627}{50}\right)$
10. $\left(\frac{\frac{2}{3} + \frac{4}{6}}{8,1 - 1,1} \cdot \frac{\frac{3}{12} - \frac{2}{4}}{\frac{1}{8}} \cdot \frac{18}{21}\right) : \left(\frac{\frac{3}{5} + \frac{2}{10}}{\frac{2}{5} - \frac{1}{2}} \cdot \frac{8}{12}\right) =$	$\left(\frac{3}{49}\right)$

11.	$\left(2 : \frac{1}{18} - \frac{7}{20} \cdot 120\right) : \left[\left(\frac{3}{4} + 0,25\right) : \frac{2}{3} + 1,5\right] =$	(-2)
12.	$\frac{3}{5} - \frac{5}{3} \cdot \frac{27}{25} \left[\frac{8}{4} - \frac{12}{8} : \frac{15}{20} \left(\frac{15}{50} : \frac{3}{10} + \frac{4}{8}\right) \cdot \frac{3}{5}\right] \cdot \frac{4}{4} =$	$\left(\frac{6}{25}\right)$
13.	$\frac{16}{6} : \frac{3}{2} + \frac{8}{5} \cdot \frac{5}{2} - \left[\left(\frac{3}{2} - \frac{17}{9}\right) + \frac{16}{9}\right] \cdot \frac{1}{2} =$	$\left(\frac{61}{12}\right)$
14.	$\frac{\frac{1}{2} + \frac{3}{4} : \frac{12}{36}}{\frac{4}{8} + \frac{8}{1}} : \frac{\frac{2}{1}}{\frac{18}{3} : \frac{9}{36}} =$	$\left(\frac{66}{17}\right)$
15.	$2 \cdot \left(1 - \frac{5}{6}\right) + 4 : \left(\frac{2}{3} \cdot \frac{3}{4} + \frac{11}{2}\right) =$	(1)
16.	$\frac{\left(\frac{1}{6} + \frac{1}{10} + \frac{1}{15}\right) : \left(\frac{1}{6} + \frac{1}{10} - \frac{1}{15}\right) \cdot \frac{63}{25}}{\left(\frac{1}{2} - \frac{1}{3} + \frac{1}{4} - \frac{1}{5}\right) : \left(\frac{1}{4} - \frac{1}{6}\right) \cdot \frac{7}{13}} =$	(3)
17.	$\left(\frac{542}{30} - \frac{105}{6}\right) : \frac{1}{20} - \frac{1,25 : 0,25 + 1 : 0,5}{(9,45 - 8,45) \cdot \frac{1}{3}} =$	$\left(-\frac{29}{3}\right)$
18.	$\frac{\frac{48}{6} : \frac{54}{9} \cdot \left[6 \cdot \left(17 - \sqrt{4} : \frac{9}{23}\right) + 20\right]}{\frac{7}{14} - \left\{\frac{24}{2} - \frac{4}{7} \cdot [27 \cdot \sqrt{324} \cdot (2+2)]\right\}} =$	$\left(\frac{6713}{45840}\right)$
19.	$\left(\frac{0,5 + 0,75}{5}\right) + \left(\frac{\frac{3}{50} : \frac{9}{100} + 14}{\frac{11}{30}}\right) : 10 =$	(9)
20.	$\left(\frac{\frac{2}{4} : \frac{8}{4} + \frac{12}{6} \cdot \frac{3}{4} : \frac{15}{9}}{\frac{10}{12} - \frac{3}{6}} : \frac{3}{5}\right) \cdot \frac{4}{2} =$	$\left(\frac{7}{6}\right)$
21.	$\left(1,6 - \frac{3}{5}\right) \cdot \left(-2\frac{1}{4}\right) - 0,2 : \left(-\frac{4}{5}\right) =$	(-2)
22.	$0,725 + \frac{3}{5} + 0,175 + \frac{32}{75} + \frac{37}{30} =$	$\left(\frac{79}{25}\right)$

23.	$\frac{\left(\frac{1}{5} : \frac{1}{15} + 9\right) \cdot \frac{1}{2} \cdot \left(\frac{2}{30} : \frac{1}{15} \cdot 0,75\right) \cdot \frac{2}{3}}{\left(\frac{1}{5} + 9 \cdot \frac{1}{15}\right) + \frac{1}{2} \cdot \left(\frac{3}{30} \cdot \frac{2}{15} \cdot 0,1\right)} =$	$\left(\frac{22500}{13}\right)$
24.	$\left[\frac{3}{5} - 1,2 \left(1 + 1\frac{1}{2}\right)\right] : \left[\left(2,5 - \frac{2}{5}\right) : \frac{7}{8} - 3\right] =$	(4)
25.	$\frac{\left(\frac{0,875}{3,2 - 1\frac{1}{3}} : \frac{3 + \frac{3}{4}}{1,2}\right) \cdot \frac{1 - \frac{1}{3}}{1 + \frac{1}{4}}}{1} =$	$\left(\frac{2}{25}\right)$
26.	$\frac{1}{2} + \left\{ \frac{5}{12} - \left(\frac{3}{4} - 1\frac{1}{3}\right) - \left[3\frac{2}{5} - \left(\frac{1}{8} - 2\frac{1}{4}\right)\right] - 2 \right\} =$	$\left(-\frac{241}{40}\right)$
27.	$\frac{\frac{9}{4} : \frac{3}{18} - \frac{3 - \frac{3}{2} + \frac{6}{5}}{9} : \frac{13}{15}}{\frac{8}{5} : \frac{16}{25} - \frac{5}{9} - \frac{10}{13} + \frac{15}{18}} =$	$\left(\frac{29655}{884}\right)$
28.	$\frac{\frac{5}{6} + \frac{26}{12}}{-2 + \frac{105}{15}} + \frac{\frac{2}{3} \cdot \frac{9}{2} \cdot \frac{1}{3}}{\frac{6}{2}} + \frac{\frac{9}{14} \cdot \frac{7}{16} \cdot \frac{4}{3} + \frac{5}{8}}{\frac{30}{14} + \frac{9}{2} \cdot \frac{5}{3}} =$	(1)
29.	$\left[\frac{6 - \frac{27}{52} - \frac{27}{54} \cdot 14}{\frac{7}{4} : \frac{91}{12}} - \frac{54}{2}\right] : \frac{9}{28} =$	(63)
30.	$\frac{1}{15} - \frac{1}{2} + 0,2 \left(0,75 + 2\frac{1}{4}\right) + \frac{\frac{48}{12} \cdot \frac{12}{27}}{\frac{27}{9}} - 44 =$	$\left(\frac{601}{6}\right)$
31.	$\frac{\left(\frac{5}{2} - 1\right) : 6 + \left(\frac{15}{4} - 1\right) : 11 + \left(\frac{25}{9} - 1\right) : \left(7 + \frac{1}{9}\right)}{\frac{1}{2 + \frac{2}{3}} + \frac{1}{1 + \frac{1}{7}} - \frac{1}{1 - \frac{1}{9}}} =$	(6)
32.	$\frac{\frac{25}{5} : \frac{3}{72}}{\frac{72}{18} + 1} : \frac{60 \cdot \frac{1}{2}}{13 - \frac{264}{33}} =$	(4)
33.	$\frac{\frac{8}{9} - \frac{2}{5} : \frac{6}{25}}{5 \cdot \left(\frac{3}{4} + \frac{7}{20}\right) \cdot \frac{5}{6}} \cdot 36 =$	(-6)

34.	$\frac{22}{4} \cdot \left[-\frac{1}{4} + \left(\frac{5}{2} - \frac{3}{6} : \frac{\frac{4}{22} \cdot \frac{11}{16}}{\frac{5}{8}} \right) : 1\frac{3}{5} \right] + 0,75 =$	$\left(-\frac{5}{8} \right)$
35.	$\frac{\left(2\frac{3}{6} + 0,2 \right) \cdot 6 + \frac{3}{4}}{\left(\frac{2}{5} - 2 \right) : 3 + 0,4 \cdot \frac{1}{5}} =$	$\left(-\frac{565}{16} \right)$
36.	$\frac{\frac{1}{2} - \frac{2}{4} + \frac{5}{6}}{\frac{7}{2} \cdot \frac{4}{14}} + \frac{\frac{14}{7} + \frac{6}{7} : \frac{18}{7}}{\frac{36}{9} : \frac{9}{3}} =$	$\left(\frac{31}{12} \right)$
37.	$\frac{\frac{3}{4} + \frac{3}{5}}{\frac{2}{1} + \frac{3}{2} + \frac{4}{10}} : \frac{\frac{7}{5} + \frac{4}{3} \cdot \frac{4}{7}}{\frac{1}{7} - \frac{1}{8} \cdot \frac{1}{2}} - \frac{1}{\frac{3}{4} + \frac{4}{3}} =$	$\left(-\frac{86169}{1305850} \right)$
38.	$\left[2\frac{3}{4} \cdot \left(1\frac{1}{2} - \frac{2}{5} \right) \right] : \frac{2}{3} - 2\frac{3}{4} \cdot \left[\left(\frac{1}{2} - \frac{2}{5} \right) : \frac{2}{3} \right] =$	$\left(\frac{33}{8} \right)$
39.	$\left[\frac{3}{5} - 1,2 \left(1 + 1\frac{1}{2} \right) \right] : \left[\left(2,5 - \frac{2}{5} \right) : \frac{7}{8} - 3 \right] =$	(4)
40.	$\left[\left(\frac{9}{2} - \frac{7}{3} - \frac{3}{1} \right) - \left(\frac{5}{6} - \frac{1}{9} - \frac{2}{3} \right) + \frac{1}{15} \right] : \left(\frac{7}{2} - \frac{5}{6} \right) =$	$\left(-\frac{37}{120} \right)$
41.	$\frac{\frac{6}{7} : \frac{1}{14}}{\frac{8}{7} + \frac{4}{3}} + \frac{4}{7} =$	$\left(\frac{493}{91} \right)$
42.	$\frac{36\frac{2}{3} : 15 + 8\frac{2}{3} \cdot 7}{12\frac{1}{3} + 8\frac{6}{7} : 2\frac{4}{7}} =$	(4)
43.	$\left\{ \frac{18}{25} : 1\frac{1}{35} + \left[\frac{27}{28} : \frac{9}{14} + \left(\frac{16}{25} \cdot 1\frac{3}{32} - \frac{2}{7} \cdot 1\frac{3}{4} \right) \right] \right\} : 2 - 1 =$	$\left(\frac{1}{5} \right)$
44.	$\left[\frac{3}{5} - \frac{4}{3} \left(1 + 2\frac{1}{4} \right) \right] : \left[0,2 : \left(-\frac{4}{5} \right) - 3 \right] =$	$\left(\frac{224}{195} \right)$
45.	$3 \cdot \left(\frac{\frac{1}{16} + \frac{9}{4}}{\frac{36}{3} + \frac{196}{3}} \right) + \frac{7}{6} =$	$\left(\frac{1739}{588} \right)$
46.	$\frac{2 \cdot 16 - 2}{4^2 + 4 - 8} + \frac{3 - 27 + 8}{6} =$	$\left(-\frac{1}{6} \right)$

47.	$\frac{\frac{1}{2} - \frac{1}{3} : \frac{1}{3} - \frac{1}{4}}{\frac{1}{2} + \frac{1}{3} : \frac{1}{3} + \frac{1}{4}} \cdot \left(\frac{1}{3} + \frac{1}{12}\right) =$	$\left(\frac{7}{12}\right)$
48.	$\frac{\left[4\frac{1}{2} - \frac{2}{7} \cdot \left(2 + \frac{5}{8}\right)\right] : \left[\left(0,25 - \frac{4}{3}\right) : \frac{13}{24} + 3,5\right]}{\left(0,75 + \frac{4}{3}\right) : \left(\frac{1}{2} + \frac{6}{3}\right)} =$	(3)
49.	$\frac{\frac{1}{2} + \frac{1}{3} + \frac{1}{4}}{\frac{1}{2} - \frac{1}{3} - \frac{1}{4}} : \frac{39}{28} =$	$\left(-\frac{28}{3}\right)$
50.	$\frac{\left[\left(6\frac{3}{4} : \frac{27}{16} - \frac{6}{5} \cdot \frac{10}{9}\right) \cdot \frac{1}{2} + \frac{4}{20}\right] : 0,04}{\left(3 + \frac{16}{5} \cdot 0,25\right) \cdot \frac{20}{72}} =$	$\left(\frac{690}{19}\right)$
51.	$3,5 + \left(\frac{20}{5} + \frac{\frac{20}{10} - \frac{1}{5}}{\frac{9}{20}}\right) \cdot 20 \cdot \left(\frac{10}{2} \cdot \frac{2}{6} : \frac{40}{24}\right) =$	$\left(\frac{327}{2}\right)$
52.	$\frac{\frac{1}{3} - \frac{1}{4} : \frac{1}{4} - \frac{1}{5}}{\frac{1}{3} + \frac{1}{4} : \frac{1}{4} + \frac{1}{5}} \cdot \left(\frac{1}{4} + \frac{1}{12}\right) =$	$\left(\frac{3}{7}\right)$
53.	$\left(\frac{\frac{5}{5}}{7 + 5\frac{1}{4}} + \frac{5 + 1\frac{1}{4}}{\frac{5}{8}}\right) \cdot \left(\frac{1}{4} - \frac{1}{5}\right) =$	$\left(\frac{247}{490}\right)$
54.	$\left[\frac{1}{2} + \frac{2}{3} \cdot 6 + (0,11 - 0,6)\right]^2 =$	(25)
55.	$\frac{\frac{5}{18} \cdot \frac{3}{5} + \frac{15}{28} : \frac{15}{56}}{10 + 5 : \frac{1}{3}} + \frac{2 : \frac{1}{4} + 6 : \frac{1}{6}}{\frac{1}{2} : 2 + \frac{1}{3} : 3} =$	$\left(\frac{237769}{1950}\right)$
56.	$\frac{0,75}{1\frac{1}{3} - 2,2} : \frac{2,5}{3 + \frac{7}{2}} \cdot \frac{\frac{1}{4} - \frac{1}{9}}{\frac{1}{2} - \frac{1}{3}} =$	$\left(-\frac{15}{8}\right)$
57.	$\frac{3}{2} + \left[\frac{5}{4} - \frac{7}{3} \cdot \left(\frac{9}{8} - 7\right)\right] =$	$\left(\frac{395}{24}\right)$
58.	$\frac{12}{2} - \frac{7}{3} : \frac{12}{2} + \left\{\frac{2}{8} - \left[5 - 6 \cdot \left(-\frac{1}{2}\right)\right] - 2\right\} =$	$\left(-\frac{149}{36}\right)$

59.	$\frac{\left(\frac{1}{4} + \frac{7}{3}\right) \cdot \left(2 + \frac{8}{3}\right)}{\left(\frac{8}{5} - \frac{7}{5}\right) \cdot 5 \cdot 0,1} =$	$\left(\frac{1085}{9}\right)$
60.	$\left(\frac{5}{2} - \frac{3}{2}\right) + \frac{6}{4} : \frac{2}{8} =$	(7)
61.	$\frac{2}{5} \left(\frac{6}{8} + \frac{3}{4}\right) - \frac{28}{6} + \left(-\frac{4}{9} \cdot \frac{3}{4}\right) =$	$\left(-\frac{22}{5}\right)$
62.	$\frac{2,5 - 3 \cdot \frac{1}{3} \cdot 1,2}{\frac{2}{4} : 8} : \frac{3,2 \cdot 1 \cdot \frac{2}{3}}{0,75 - 0,5 : \frac{3}{2}} =$	$\left(-\frac{15}{8}\right)$

Sljedeće zadatke sastavili su i riješili učenici 1.b i 1.d razreda školske godine 2012./2013.

63.	$\frac{3}{15}x \cdot (2x+8)^2 - \frac{3}{5} : \left(\frac{2}{15}xy - \frac{3}{15}xy\right)^3 =$	$\left(\frac{4}{5}x^3 + \frac{32}{5}x^2 + \frac{64}{5}x + \frac{2025}{x^3y^3}\right)$
64.	$5x + 20y - 3(2x+3)^2 + 4 \cdot 8 =$	$(-12x^2 - 31x + 20y + 5)$
65.	$-2x(2+3x)^2 + 2(2x+3)(2x-3) - 3x(2+3)^3 =$	$(-18x^3 - 16x^2 - 383x - 18)$
66.	$2x(2x-2x)^2 + \frac{1}{3}(3+x) \cdot 3y^2 -$ $-(7+4x^2-3y)^2 + (1+5x)^3 =$	$(-16x^4 + 125x^3 + 19x^2 + 15x -$ $-6y^2 + 42y + 24x^2y + xy^2 - 48)$
67.	$2x(3-2a)^2 + 3(3a-2)^2 - 2(3+5a)^3 =$	$(18x - 24xa + 8xa^2 - 423a^2 -$ $-306a - 42 - 250a^3)$
68.	$(2x-3y)^3 - 2(5x+3y+2)^2 - 2 \cdot 7^0 =$	$(8x^3 - 27y^3 - 50x^2 + 54xy^2 -$ $-36x^2y - 18y^2 - 60xy -$ $-40x - 24y - 10)$
69.	$(7x+5)^2 \cdot 5 - 4x(8x-3y)^2 =$	$(-256x^3 + 245x^2 + 350x +$ $+192x^2y - 36xy^2 + 125)$
70.	$3x(2y+4)^2 - 3(x^2+6)^3 =$	$(-3x^6 - 54x^4 - 324x^2 + 48x +$ $+12xy^2 + 48xy - 648)$
71.	$(x+y)^2 + (x+y)^3 - (x-y)^2 - (x-y)^3 =$	$(2y^3 + 6x^2y + 4xy)$
72.	$(2x-5)^2 \cdot 3x - 2(x-3)^3 =$	$(10x^3 - 42x^2 + 21x + 54)$
73.	$2x(4x+y)^2 + 3x(2x+3y)^3 =$	$(24x^4 + 32x^3 + 108x^3y + 162x^2y^2 +$ $+16x^2y + 81xy^3 + 2xy^2)$
74.	$(2x-3)^2 \cdot 2x - 2(3x+5)^3 =$	$(-46x^3 - 294x^2 - 432x - 250)$
75.	$2x(2+4y)^2 + 3(2x+5)^3 =$	$(24x^3 + 180x^2 + 458x +$ $+32y^2 + 32xy + 375)$

76.	$(2x-6)^3 + 2(2x-2)^2 - 3(2x+3)^3 =$	$(-16x^3 - 172x^2 + 38x - 289)$
77.	$(2x+3+7)^2 + (6x+5y)^3 -$ $-4y(-3x+5) - 6x(x+2x^2) =$	$(100 + 40x - 2x^2 + 204x^3 -$ $-20y + 12xy + 540x^2y +$ $+450xy^2 + 125y^3)$
78.	$\left(\frac{1}{2} + 2y\right)^2 \cdot 4 - (3+y)^3 =$	$(-y^3 + 7y^2 - 19y - 26)$
79.	$\frac{1}{3}(3x+6)^2 \cdot 4x - (2x-3)^2 \cdot 5x =$	$(-8x^3 + 108x^2 + 3x)$
80.	$(3x+2)^3 + \frac{1}{2}(x+3)^2 + (5x-1) \cdot 3 \cdot (8+x) + \frac{3}{4} =$	$\left(27x^3 + \frac{139}{2}x^2 + 156x - \frac{43}{4}\right)$
81.	$2(x+3)^3 - 3(x-1)^3 =$	$(-x^3 + 27x^2 + 45x + 57)$
82.	$\left(6x - \frac{4}{3}y\right)^2 \cdot \frac{1}{2} - (7x+4y)^3 \cdot (-4) =$	$\left(1372x^3 + 2352x^2y + 18x^2 +$ $+1344xy^2 - 8xy + 256y^3 + \frac{8}{9}y^2\right)$
83.	$\frac{1}{5}(5-10)^2 \cdot 5x + 5x^2(5x+5)^3 =$	$\left(625x^5 + 1875x^4 + 1875x^3 +$ $+625x^2 + 25x\right) =$
84.	$(3x+2)^2 + 3 \cdot \left(8y - \frac{3}{8}x\right)^3 - \frac{2}{10} \cdot \left(\frac{8}{4}x - \frac{3}{9}\right)(3-2) =$	$\left(-\frac{81}{512}x^3 + \frac{81}{8}x^2y + 9x^2 -$ $-216xy^2 + \frac{58}{5}x + 1536y^3 + \frac{61}{15}\right)$
85.	$2x \cdot (1+y)^3 + (7+2x)(7-2x) =$	$(-4x^2 + 2xy^3 + 6xy^2 + 6xy + 2x + 49)$
86.	$(2x+3)^3 \cdot 3y - 3xy \cdot (4x^2 - 7x)^2 \cdot 5y =$	$(-240x^5y^2 + 840x^4y^2 - 735x^3y^2 +$ $+24x^3y + 108x^2y + 162xy + 81y)$
87.	$(4y+3x^2)^3 - 4(11x^3+5)^2 - (4y+5x^2)^2 \cdot 4xy =$	$(-457x^6 - 100x^5y + 108x^4y -$ $-160x^3y^2 - 440x^3 + 144x^2y^2 -$ $-64xy^3 + 64y^3 - 100)$
88.	$5 \cdot (8x-4)^3 + 9 \cdot (-3x+2)(6x-8) =$	$2560x^3 - 4002x^2 + 2244x - 464$
89.	$\frac{1}{3}(7x-9)^2 \cdot 4x - (3x+5y)^3 \cdot \frac{1}{3y} + \frac{48}{9}x^2 -$ $-\left(2x+6+\frac{2}{3}x\right)^2 + \left(\frac{1}{2}+x\right)^2 =$	$-\frac{9x^3}{y} + \frac{196}{3}x^3 - \frac{1924}{9}x^2 - 75xy +$ $77x - \frac{125}{3}y^2 - \frac{143}{4}$
90.	$2\left(3+\frac{1}{3}\right)^2 + 3\left(\frac{1}{2}x-7\right)^3 =$	$\frac{3}{8}x^3 - \frac{63}{4}x^2 + \frac{441}{2}x - \frac{9061}{9}$
91.	$\frac{2}{9}(3x+6y^2)^2 + (x-2y)^3 \cdot 7x =$	$7x^4 - 42x^3y + 84x^2y^2 + 2x^2 -$ $-56xy^3 + 8xy^2 + 8y^4$

92.	$7 \cdot \left[\left(\frac{1}{2}x - \frac{3}{4}y \right) \left(\frac{1}{2}x + \frac{3}{4}y \right) \right] -$ $-3 \left(2y - 5x - \frac{2}{3}y \right)^2 \cdot 6^{-2} + \left(\frac{5}{7} - \frac{1}{7} \right)^2 =$	$-\frac{1765}{432}y^2 + \frac{10}{9}xy - \frac{1}{3}x^2 + \frac{16}{49}$
93.	$3^3 \cdot (2x^2 + 3y)^2 + (1^0 + 5^2 \cdot 2)^2 : 10^2 - 2(3x - 2y + x)^2 =$	$729y^3 + 1458x^2y^2 - 8y^2 + 972x^4y +$ $+ 32xy + 216x^6 - 32x^2 + \frac{2601}{100}$
94.	$(8 + 4a)^2 \cdot 2 + 3 \cdot (a^3 + a^2)^3 =$	$3a^9 + 9a^8 + 9a^7 + 3a^6 + 32a^2 +$ $+ 128a + 128$
95.	$(4 + 7a)^3 \cdot 2 + 3 \cdot (a - a^2)^2 =$	$3a^4 + 680a^3 + 1179a^2 + 672a + 128$
96.	$3(3x + 1)^2 + 3x(2 + 8y)^2 + 4(3x + 1)^3 =$	$192xy^2 + 96xy + 108x^3 + 135x^2 +$ $+ 66x + 7$
97.	$2(2x - 3y)^3 - \left(\frac{1}{2}x + 4xy \right)^2 =$	$-54y^3 - 16x^2y^2 + 108xy^2 -$ $- 76x^2y + 16x^3 - \frac{x^2}{4}$
98.	$(2x + 3)^3 - 2 \cdot (3 - 2y)^2 + (a^2 - 1)(2 + a) +$ $+ (2x + 3 + 5y)^2 =$	$17y^2 + 20xy + 54y + 8x^3 + 40x^2 +$ $+ 66x + a^3 + 2a^2 - a + 16$
99.	$(2 + 3y)^2 - 2 \cdot (x - y)^3 =$	$2y^3 - 6xy^2 + 9y^2 + 6x^2y +$ $+ 12y - 2x^3 + 4$
100.	$3(2x - 8)^2 + 4(3x + 6)^3 \cdot 7 =$	$756x^3 + 4548x^2 + 8976x + 6240$
101.	$2 \cdot (2x + y)^3 + (3x + 4y)^2 =$	$2y^3 + 12xy^2 + 16y^2 + 24x^2y +$ $+ 24xy + 16x^3 + 9x^2$
102.	$(2a + 3)^2 - (a + 3c - 2ab)^2 + (7a - 4b)^3 =$	$-9c^2 + 12abc - 6ac - 64b^3 -$ $- 4a^2b^2 + 336ab^2 - 584a^2b +$ $+ 343a^3 + 3a^2 + 12a + 9$
103.	$3 \cdot (-2x + 8y)^2 + 2 \cdot (2y - 2x)^3 - 2 \cdot (x - 2)^2 =$	$16y^3 - 48xy^2 + 192y^2 + 48x^2y -$ $- 96xy - 16x^3 + 10x^2 + 8x - 8$
104.	$2 \cdot (2x - y)^2 + 3 \cdot (x + 3y)^3 =$	$81y^3 + 81xy^2 + 2y^2 + 27x^2y -$ $- 8xy + 3x^3 + 8x^2$
105.	$(4a + 2b)^2 + (3 + 4b + 2c)^2 +$ $+ (4 + 2b)^3 + (2a + 3b)(4a + 2b) =$	$4c^2 + 16bc + 12c + 8b^3 + 74b^2 +$ $+ 32ab + 120b + 24a^2 + 73$
106.	$-2 \cdot (3x - 2)^2 + (2 + 3x)^3 =$	$27x^3 + 36x^2 + 60x$
107.	$\left\{ \left[3 \cdot (7e + 13f - 4y)^2 \right] - \left[3 \cdot (7y - 7e)^2 \right] \right\} - 507f^2 =$	$-99y^2 - 312fy + 126ey + 546ef$
108.	$\left(\frac{1}{2}x^4 + 3 \right)^3 =$	$\frac{x^{12}}{8} + \frac{9x^8}{4} + \frac{27x^4}{2} + 27$
109.	$2 \cdot (3x + 2)^2 + 2 \cdot (4 - x)^3 =$	$-2x^3 + 42x^2 - 72x + 136$

